

**What is claimed is:**

- 1        1.        A connector equipped with a valve, comprising:
  - 2            a connector housing comprising:
    - 3            a through path;
      - 4            a tube connection section being formed at a first axial side;
      - 5            a pipe insertion section being formed at a second axial side;
      - 6            an internal valve disposed in said connector housing to open and close said
      - 7            through path;
    - 5            a connector equipped with a valve,
    - 6            a valve housing section disposed between said tube connection section and said
    - 7            pipe insertion section,
    - 8            an inner diameter of said valve housing section being larger than an inner diameter
    - 9            of said tube connection section;
    - 10          said internal valve comprising:
      - 11            a valve seat surface formed on an inner surface of said housing between said tube
      - 12            connection section and said valve housing section;
      - 13            a closing section having an outer perimeter section; an abutting surface formed on
      - 14            said outer perimeter section and abutting said valve seat surface;
      - 15            a main valve body housed in said valve housing section and
      - 16            allowing axial movement; and
      - 17            a compression spring biasing said main valve body toward a first
      - 18            axial side; and
      - 19            a cylindrical bushing being fitted to said pipe insertion section and filling a
      - 20            space between an inner perimeter surface of a first axial side of said pipe insertion section
      - 21            and an insertion-side end of an inserted pipe body.

1           2.     The connector equipped with a valve as described in claim 1, further  
2     comprising a valve cap receiving a second axial-side end of said compression spring and  
3     being integrally formed with a first axial-side end of said cylindrical bushing.

1           3.     The connector equipped with a valve as described in claim 1, wherein said  
2     main valve unit comprises:

3           a housing-side guide extending from said closing section to a second axial side and  
4     sliding over an inner perimeter surface of said valve housing section;

5           a connection-side guide extending toward a first axial side from said closing section  
6     and sliding over an inner perimeter surface of said tube connection section.

1           4.     The connector equipped with a valve as described in claim 3, further  
2     comprising:

3           a support groove formed on a second axial side of said housing-side guide  
4     of said main valve body wherein a first axial-side end of said compression spring is held  
5     and supported in said support groove.

1           5.     The connector equipped with a valve as described in claim 1, further  
2     comprising a small through-hole communicating with said through-path at both axial sides  
3     of said closing section and formed in said closing section of said main valve body.

1           6.     The connector equipped with a valve as described in claim 1, wherein said  
2     valve seat surface is formed with a linear cross-section shape and said abutting surface of  
3     said closing section is formed as an arc projecting outward in cross section.